

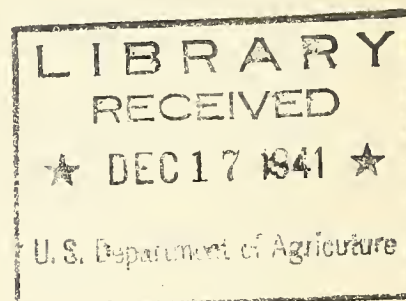
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## STATUS OF THE EUROPEAN CORN BORER IN 1941

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## Distribution

In 1941 considerable spread of the European corn borer was recorded west and southwest of previously infested areas in Wisconsin, Illinois, and Indiana, and toward the southeast in Pennsylvania, Maryland, Virginia, and North Carolina, increasing the known distribution of the insect in the Northeastern States by 77 counties. In Wisconsin the corn borer was discovered in 7 new counties, and the infestation extended westward to cover practically half of the State. The insect was present in 26 new counties of Illinois, bringing almost half of that State within the known infested area and carrying the infestation west through some of the northern counties to the Mississippi River and southward along the eastern border of the State for a considerable distance down the Wabash River. The pest was found for the first time in 15 additional counties

<sup>1/</sup> The data presented in this report were accumulated by the Bureau of Entomology and Plant Quarantine and by various agencies in the States infested by the European corn borer (*Pyrausta nubilalis* Hbn.), and were assembled and tabulated at the laboratory for European corn borer research, at Toledo, Ohio, with W. A. Baker in charge. In addition to activity by the Bureau, the survey in 1941 was conducted in 62 counties of Indiana by the Indiana State Conservation Department; in 14 counties of Maine, in 17 counties of New Jersey, and in 12 counties of Vermont, by the State departments of agriculture of those States; in 12 counties of eastern New York, including Long Island, by the New York Agricultural Experiment Station at Geneva and the New York State Department of Agriculture, cooperating; and in 7 counties of New Hampshire, in 5 counties of Maryland, and in half of the 3 counties of Delaware, by the agricultural experiment stations of those States. New county records of the European corn borer in 1941 were contributed by the Natural History Survey and the State department of agriculture of Illinois; by the State conservation department of Indiana; by the State departments of agriculture of North Carolina, Virginia, and Wisconsin; by the Maryland Agricultural Experiment Station; and by the Bureau of Entomology and Plant Quarantine of the U. S. Department of Agriculture. The Bureau appreciates the interest and cooperation of all States in which the survey was conducted and from which new records of distribution were obtained in 1941.

in western Indiana, filling in a large area between the group of counties previously known to be infested in that State and the infested part of eastern Illinois, and establishing about two-thirds of Indiana as now infested. Seven newly infested counties were recorded in southeastern Pennsylvania in 1941, leaving only 2 counties in that State in which the borer has not yet been found. In Maryland 11 new counties were found infested, including the remainder of the Eastern Shore, thus extending the known infestation the length of the State from Pennsylvania south to Virginia. First records were obtained in 9 counties of eastern Virginia, the infestation appearing in all counties along the Potomac River and in several others adjoining the older infested section of the State nearer the coast. The European corn borer was also first recorded in Washington, D. C., in 1941, and in 1 county of North Carolina on the south shore of Albemarle Sound.

The following list gives the counties of infested States in which the European corn borer was found for the first time in 1941:

Illinois: Boone, Bureau, Carroll, Christian, Clark, Coles, Crawford, Cumberland, De Witt, Douglas, Edgar, La Salle, Lawrence, Lee, Logan, Macon, Marshall, Moultrie, Ogle, Peoria, Piatt, Putnam, Shelby, Stephenson, Tazewell, and Woodford.

Indiana: Bartholomew, Benton, Clay, Fountain, Hendricks, Montgomery, Morgan, Newton, Owen, Parke, Putnam, Vermillion, Vigo, Warren, White, and Jefferson.

Maryland: Baltimore, Caroline, Carroll, Cecil, Charles, Dorchester, Howard, Kent, Prince Georges, Queen Annes, and Talbot.

North Carolina: Tyrrell.

Pennsylvania: Adams, Cumberland, Dauphin, Lebanon, Perry, Schuylkill, and York.

Virginia: Charles City, Fairfax, Henrico, King George, Loudoun, Prince William, Stafford, Surry, and Warwick.

Washington, D. C.

Wisconsin: Dane, Green, Langlade, Marathon, Marquette, Rock, and Sauk.

#### Fall Abundance

The relative abundance of the European corn borer in corn in the fall of 1941 was determined for a considerable portion of the infested area. In all, 3,474 cornfields were examined in 258 counties of 18 infested States, approximately half of the counties being surveyed by the Bureau and the remainder by the State agencies. In each of 3 States, 2 small counties were combined and each pair was treated as a survey unit, and in 1 State 3 groups of 4 small counties each were handled in this way. Except in Delaware, Indiana, and Maine, the survey procedure in 1941 followed that in general use by the Bureau during the last 2 years. By this method, 10 cornfields at random were sampled within each county, the count of infestation being obtained by



examining 25 consecutive corn plants taken at a given distance within a field from near the mid point of its most accessible edge, and the number of borers per infested plant being determined by dissecting the first 2 plants found infested. The procedure in Delaware was changed to the extent of doubling the number of fields examined per county. In Maine an average of 20 to 25 fields was surveyed in each county and in Indiana an average of about 20 fields was examined, the exact quota per county in the latter State varying somewhat with the number of townships within a unit. The population figure for each field in the Maine and Indiana surveys was based on an examination of 100 plants and the dissection of 5 infested plants. In either survey procedure the product of the percentage of plant infestation in a field and the average number of borers per infested plant provided a figure designated as the average number of borers per 100 plants. The population data derived in this way for the individual fields were then grouped in the calculation of county averages.

A summary of the data on corn borer abundance in corn for all counties and States surveyed in 1941 is presented in table 1, in which the data obtained from the 1940 survey are also given for comparison. In table 2 the average numbers of borers per 100 plants are given for each county surveyed in 1941 and all possible comparisons are made with similar data from 1940; Both States and counties are arranged alphabetically in the presentation of the data. In reading the tabulated data it should be noted that a zero recorded for any county indicates a population so low that no infested plants occurred within the specified counts and does not necessarily mean the complete absence of the borer. On the accompanying map shaded areas indicate the relative abundance of the European corn borer in corn in that part of the infested area surveyed in 1941. The known distribution of the insect on a county basis, including the 1941 spread, is also shown on the map and includes nearly all of the area to the north and east of the dotted line. A brief discussion of the 1941 survey follows.

Significant increases in abundance of the European corn borer in 1941 from that of 1940 appeared in several counties of central New Jersey, in a considerable area in western and southwestern Indiana, and in northwestern Illinois. Although comparable data of other years are not available for a large number of counties surveyed in western Indiana in 1941, many of which had not been recorded previously as infested, the relative abundance of the corn borer found in that section in 1941 and the comparative ease with which specimens of the insect could be collected in newly infested counties in both Indiana and Illinois offers substantial evidence that populations of the insect are building up over a wide front in this part of the Corn Belt. A similar condition apparently prevailed in Wisconsin where appreciable westward dispersion was recorded in 1941, and limited survey data indicated that populations of the borer were at about the same level in 1941 as in 1940.

The year 1941 was largely characterized, however, by a general decrease in corn borer abundance from that of 1940 in a large part of the infested area surveyed in both years, the average number of borers per 100 plants in 180 counties being reduced from 154.7 in 1940 to 61.8 in 1941, or approximately 60 percent. The decrease in 1941 was evidently more widespread than any previously recorded and was particularly apparent in sections of the New England States, where the reduction from 1940 was around 75 percent, and in

New York, Maryland, Virginia, and Michigan, where borer populations were about 85 percent lower in 1941 than in 1940. Reductions of the insect from 1940 to 1941 in comparable sections of Ohio and Indiana averaged only a little over 40 percent, and in more than half of the 60 comparable counties surveyed in the older infested parts of these States, in the 2 years considered, there was either no significant change in abundance of the borer or a definite increase in 1941. In a number of counties in northwestern Ohio the relatively high infestation of 1940 continued in 1941, with accompanying commercial damage. At the same time, it should be noted that the decrease in Ohio, Indiana, and Michigan in 1941 did not carry populations of the corn borer nearly to as low levels as in 1930 and 1934, when drought caused appreciable reductions of the insect in these States. For example, in 17 comparable counties of Michigan and Ohio just westward of Lake Erie the average number of borers per 100 plants declined to 18.0 in 1930 and to 16.3 in 1934, whereas following the decrease in 1941 the average number of larvae per 100 plants in this section was 121.1, a figure practically as high as any determined in the previous 14 years on record, except that for 1940.

Concentrations of the corn borer were most pronounced in the fall of 1941 in northwestern Ohio, where each of 15 counties averaged 100 or more larvae per 100 plants. Populations of this size were found also in 8 counties in New Jersey, 3 in southeastern Pennsylvania, 3 in Connecticut, 1 in Rhode Island, 1 on Long Island, N. Y., 1 in Maryland, 3 in Indiana, and 3 in Michigan. The highest infestations per county in 1941 occurred in Mercer and Middlesex Counties, N. J., which averaged 610.6 and 457.8 borers per 100 plants, respectively, and in Paulding, Logan, and Van Wert Counties, Ohio, in which the respective numbers of borers per 100 plants were 442.4, 316.6, and 307.6

Wisconsin and Illinois.--Infestation by the European corn borer in 1941 was relatively light in 8 counties along the eastern edge of Wisconsin, where it averaged 13.1 borers per 100 plants, and no significant change in the status of the insect from 1940 to 1941 appeared in the 2 comparable counties of Ozaukee and Washington. The highest populations in Wisconsin in 1941 were 47.8, 24.4, and 20.4 borers per 100 plants and were observed in Sheboygan, Manitowoc, and Ozaukee Counties, respectively. In 1941 measurable numbers of the borer were found in all of the 5 counties of Illinois which were surveyed with negative results in 1940 and in 3 of 4 additional counties inspected in 1941 only. The average for the 9 Illinois counties surveyed in 1941 was 5.2 borers per 100 plants, with a maximum of 20.2 larvae per 100 plants in Vermilion County.

Indiana.--Within the section comprising 35 comparable counties in Indiana, where the corn borer had increased steadily in abundance from 1938 to 1940, there occurred a significant decrease from 77.4 borers per 100 plants in 1940 to 45.6 in 1941. Reduction in numbers of the insect was most noticeable in 13 counties in the northeastern corner of the State, where the average of 169.5 borers per 100 plants in 1940 declined to 46.6 in 1941. To the west and southwest of this section a tier of 9 counties was infested to about the same extent in 1940 and 1941, with an average of 25.5 borers per 100 plants in the former and 25.9 in the latter year. The remaining 13 comparable counties farther to the west and southwest showed significant increases in borer abundance from 21.3 in 1940 to 58.3 in 1941, and in 27 other counties, 16 of which were first found infested in 1941, there probably were more borers



present than at any previous time. The 3 high counties in the State in 1941, Tipton, Blackford, and Carroll, had borer populations per 100 plants of 134.3, 128.4, and 109.4, respectively. Carroll County was one of the group in the western part of the State which had not been surveyed before, although known to have been infested for a number of years.

Ohio.--Twenty-five comparable counties representing the northwestern quarter of Ohio, taken as a whole, showed a significant decrease in corn borer abundance from 266.9 larvae per 100 plants in 1940 to 156.8 in 1941. Nevertheless, the populations in some of these counties were among the highest observed in the country in 1941. Fifteen, or three-fifths, of the counties in this section had more than 100 borers per 100 plants and 10, or two-fifths of them, averaged over 200 larvae per 100 plants. Maximum infestation of over 300 borers per 100 plants occurred in the 3 counties of Paulding, Logan, and Van Wert, with 442.4, 316.6, and 307.6 borers per 100 plants, respectively. Borer reductions from 1940 to 1941 were significant in 8 of the Ohio counties, and in a number of the other comparable counties of the State the general trend in abundance of the insect was downward for these 2 successive years. A relatively light infestation--2.3 borers per 100 plants--was found in 16 counties in the south-central part of Ohio surveyed for the first time in 1941.

Michigan.--Abundance of the corn borer in 13 comparable counties of southeastern Michigan declined from 323 borers per 100 plants in 1940 to 54.3 in 1941, some of the most pronounced decreases occurring in the northern part of the "thumb" section, where high populations of the insect have been prevalent during the last few years. The 3 high counties in the State were Huron, Saginaw, and Lenawee, averaging 137.6, 110.6, and 102 borers per 100 plants, respectively, in 1941.

New York.--Decreases in numbers of the borer from 1940 to 1941 were common to surveyed areas in both western and eastern New York. In the 4 counties of Niagara, Orleans, Monroe, and Wayne, lying along the southern shore of Lake Ontario in western New York, the average number of borers per 100 plants changed from 510.2 in 1940 to 56.5 in 1941, and in the 12 counties surveyed in the Hudson River Valley and on Long Island in the eastern part of the State, the reduction over the same 2-year period was from 163.3 to 35.0 borers per 100 plants. Nassau County, at the western end of Long Island, had the most borers--257.2 per 100 plants--of any of the New York counties surveyed in 1941.

New England.--Throughout the New England States the corn borer decreased in abundance from 1940 to 1941, and in 1941 in sections of Connecticut, Massachusetts, and Rhode Island, where high infestations had become chronic, some of the lowest populations known in these States for many years occurred. The average number of borers per 100 plants in the 6 States declined from 101.7 in 1940 to 24.4 in 1941. The infestation in Maine was again light--1.5 borers per 100 plants in 1941, as compared with 2.2 in 1940. In New Hampshire and Vermont the 1940-41 decreases in borers per 100 plants were, respectively, from 34.0 to 5.3 and from 39.6 to 16.6. Within the 7 counties of Massachusetts included in the current survey, borer populations declined from 119.4 larvae per 100 plants in 1940 to 23.4 in 1941, and in Connecticut and Rhode Island, respectively, the averages of 81.9 and 57.6 larvae per 100 plants in 1941

represented reductions from 348.4 and 264.6 borers per 100 plants in 1940. Only 4 counties in New England had infestations in 1941 averaging over 100 borers per 100 plants. These counties and their respective populations expressed in number of borers per 100 plants were: Hartford, 235.8; New Haven, 143.4; and Fairfield, 121.8 in Connecticut; and Bristol-Newport, 163.4 in Rhode Island.

New Jersey.--No significant change in corn borer abundance from 1940 to 1941 was shown for New Jersey as a whole, the average number of borers per 100 plants being 109 in 1940 and 126.9 in 1941. Populations were higher in 1941 than in 1940 in Hunterdon, Somerset, Mercer, and Middlesex Counties in the central part of the State and trends toward increase were apparent in several other counties. On the other hand, about half of the counties in New Jersey tended to have lower numbers of the borer in 1941 than in 1940. The highest county infestations found in the United States in 1941 were in Mercer and Middlesex Counties, where the number of borers per 100 plants averaged 610.6 and 457.8, respectively. Six other counties in the State had populations in 1941 ranging from 100 to 250 borers per 100 plants.

Pennsylvania.--Bucks County, the only county in Pennsylvania surveyed in both 1940 and 1941, had the same infestation of 117.0 borers per 100 plants each year. Five additional counties in the southeastern corner of the State were included in the 1941 survey and 2 of these--Montgomery and Delaware--averaged 130.8 and 129.8 borers per 100 plants, respectively. The average for all 6 Pennsylvania counties surveyed in 1941 was 75.7 larvae per 100 plants.

Delaware, Maryland, and Virginia.--Except for a downward trend in the southern part of the State, populations of the corn borer in Delaware remained at about the same level in 1941 as in 1940, with the State average at 53.2 borers per 100 plants in 1940 and 40.1 in 1941. Reduced abundance of the borer from 1940 to 1941 was apparent in 2 Maryland and 2 Virginia counties at the lower end of the Eastern Shore, and in 2 other comparable counties on the Virginia mainland. In the comparable Maryland counties of Somerset, Wicomico, and Worcester, the average of 235.3 borers per 100 plants in 1940 dropped to 42.5 in 1941, while the 1940-41 decrease in the 4 comparable Virginia counties of Accomac, Norfolk, Northampton, and Princess Anne was from 408.6 to 30.1 borers per 100 plants. Cornfields with exceptionally high borer infestation did not occur in this region in 1941, as they did in 1940. Ten additional counties in Maryland surveyed in 1941 for the first time averaged 30.5 borers per 100 plants and 1 of these counties--Talbot--had 100 larvae per 100 plants. Infestation was relatively light in 2 counties and in 3 groups of 4 small counties each on the Virginia mainland added to the survey in 1941, with an average of 14 borers per 100 plants.

North Carolina.--The 3 infested counties in the northeastern corner of North Carolina were included in the survey in 1941 and an average of 11.3 borers per 100 plants found for the section.



## Summer Abundance in Sweet Corn

Surveys of infestation by the European corn borer in early market sweet corn were conducted in the summer of 1941 in various counties of Connecticut, Maine, Massachusetts, Michigan, New Jersey, New York, Ohio, and Vermont and in sweet corn grown for canning purposes in Maine and Vermont, by the Bureau and several of the interested States.<sup>2/</sup> As a rule, the fields surveyed represented the most heavily infested ones within a given locality. In each field 100 plants were examined for percentage of plant infestation and 10 infested plants dissected, whenever possible, to learn the average number of borers per infested plant, the product of the 2 figures giving the average number of borers per 100 plants. The 1941 data on early market sweet corn and comparisons with data for 1940 are presented in table 3.

Early market sweet corn in Burlington County, N. J., and in Lucas County, Ohio, was more heavily infested by the European corn borer in 1941 than in 1940. In the former county, an average of 894 borers per 100 plants in 1941, as compared with 510 in 1940, and in the latter county a population of 1,235 larvae per 100 plants in 1941, was a significant increase from 497 in 1940. Five fields of sweet corn in Monroe County, Mich., averaged 1,067 borers per 100 plants in the summer of 1941. The insect was much less abundant, however, in early market sweet corn in New Haven County, Conn., based on a comparison of 109 borers per 100 plants found in 1941 and 493 in 1940. The corn borer was also at a low level of abundance in 1941 in Middlesex County, Mass., Windham County, Vt., and in the several counties surveyed in Maine. In the 4 counties of Monroe, Niagara, Orleans, and Wayne, in western New York, the borer was rather abundant in 1941, whereas in surveyed sections in the eastern part of New York State populations of the pest were considerably lower in 1941 than in 1940.

Infestation by the corn borer was not especially high in sweet corn for canning in 1941 in Vermont and Maine, according to surveys conducted in these States. The average number of borers per 100 plants in 40 of the most heavily infested fields of canning corn surveyed in northern Vermont was 39.2, the 4 fields with the highest populations averaging 224, 144, 110, and 108 borers per 100 plants. In Maine the population in canning corn determined for 10 counties in which the survey was made averaged 1.5 borers per 100 plants, with a county maximum of 3.3 borers and a county minimum of 0.2 borer per 100 plants.

## Abundance and Weather

Past studies and observations concerned with the ecology of the European corn borer support an emphasis on weather as the principal influence acting on populations of the insect, and drought during the active season of the borer particularly has been found unfavorable to survival and increased abundance. Therefore, the most logical explanation of the widespread decrease in numbers of the corn borer in northeastern United States in 1941 is to be found in the drought, which was so general in that part of the country and which affected to some extent all of the infested States at certain periods of the spring and summer. On the other hand, the more favorable relationship

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<sup>2/</sup> The data on infestation in market sweet corn in New York were furnished by the Agricultural Experiment Station, Geneva, N. Y., and those for both market and canning sweet corn in Maine were supplied by the Maine State Department of Agriculture.

which presumably existed between the corn borer and its environment in several sections of the infested area in 1941 in which the insect increased in abundance from 1940, or where populations remained relatively stable for the 2 years, is not apparent in the broad generalizations on weather possible at this time. According to the Weather Bureau, precipitation was very scanty during the late winter and spring months of 1941 in the Eastern States, the spring (March, April, and May) being the driest on record in Ohio and several other States, and the second driest in Indiana, Virginia, Pennsylvania, New York, and New England. Although rainfall in June was heavy in many sections of the area where May had been extremely dry, the New England group of States, New York, Michigan, and Wisconsin, were among the States which had less than normal precipitation in that month. Above-normal rainfall in July did not occur in Indiana, Illinois, Michigan, and Wisconsin, as in the other States east of the Mississippi River. A number of the Eastern States had rainfall below normal in either August or September, or in both months, and by the first of October another drought period in the East had assumed serious and widespread proportions.

Table 1.--Data on European corn borer abundance in corn, fall of 1941, and comparisons with data for 1940, summary by States

State	1941		Comparable counties	Average borers per 100 plants	
	Counties	Average borers per 100 plants		1940	1941
	Number	Number	Number	Number	Number
Connecticut .....	8	81.9	8	348.4	81.9
Delaware .....	3	40.1	3	53.2	40.1
Illinois .....	9	5.2	5	0	4.2
Indiana .....	62	34.9	35	77.4	45.6
Maine .....	14	1.5	14	2.2	1.5
Maryland .....	13	33.3	3	235.3	42.5
Massachusetts ....	7	23.4	7	119.4	23.4
Michigan .....	13	54.3	13	323.0	54.3
New Hampshire ....	9	5.3	9	34.0	5.3
New Jersey .....	19	126.9	19	109.0	126.9
New York .....	16	40.4	16	253.8	40.4
North Carolina ..	3	11.3	0	-	-
Ohio .....	41	96.5	25	266.9	156.8
Pennsylvania ....	6	75.7	1	117.0	117.0
Rhode Island ....	4	57.6	4	264.6	57.6
Vermont .....	14	14.6	12	39.6	16.6
Virginia .....	9	21.1	4	408.6	30.1
Wisconsin .....	8	13.1	2	13.3	13.0
Total .....	258	---	180	---	---
Areal average.	---	43.8	---	154.7	61.8



Table 2.—Data on European corn borer abundance in corn, fall of 1941, and comparisons with data for 1940

State and county	Average borers per 100 plants			State and county	Average borers per 100 plants	
	1940	1941			1940	1941
	Number	Number			Number	Number
<b>Connecticut:</b>				<b>Indiana:</b>		
Fairfield....	539.6	121.8		Adams .....	246.4	34.0
Hartford ....	448.4	235.8		Allen .....	234.5	71.0
Litchfield ..	213.8	9.6		Bartholomew ..	-	5.8
Middlesex ...	472.2	63.6		Benton .....	-	13.6
New Haven ...	393.4	143.4		Blackford ....	263.8	128.4
New London ..	256.8	28.2		Boone .....	-	26.3
Tolland .....	277.6	41.6		Carroll .....	-	109.4
Windham .....	185.6	11.0		Cass .....	-	72.6
Average:				Clay .....	-	1.1
8 counties	348.4	81.9		Clinton .....	-	45.0
				Decatur .....	-	11.4
				De Kalb .....	187.0	32.8
				Delaware .....	43.6	69.0
<b>Delaware:</b>				Elkhart .....	8.2	13.2
Kent .....	29.8	28.3		Fayette .....	16.5	61.6
New Castle ...	25.2	26.7		Fountain .....	-	14.4
Sussex .....	104.7	65.4		Franklin .....	-	55.2
Average:				Fulton .....	17.3	19.5
3 counties	53.2	40.1		Grant .....	75.5	74.6
				Hamilton .....	10.6	42.3
				Hancock .....	10.5	53.2
				Hendricks ...	-	15.7
<b>Illinois</b>				Henry .....	20.6	63.2
Champaign ...	-	4.2		Howard .....	35.3	90.0
Cook .....	0	1.6		Huntington ..	173.1	58.4
De Kalb .....	-	0.8		Jasper .....	-	8.3
Du Page .....	0	5.6		Jay .....	252.6	59.7
Kankakee .....	0	3.2		Johnson .....	-	20.0
Lake .....	0	7.2		Kosciusko ...	44.4	11.4
McLean .....	-	0		Lagrange .....	28.5	4.9
Vermilion ...	-	20.2		Lake .....	-	4.0
Will .....	0	3.6		La Porte .....	1.4	1.6
Average:				Madison .....	38.7	98.3
5 counties	0	4.2		Marion .....	-	52.3
9 counties	-	5.2		Marshall .....	17.5	23.7
				Miami .....	21.2	23.8
				Montgomery ..	-	8.9
				Morgan .....	-	4.1

Table 2.—Data on European corn borer abundance in corn, fall of 1941, and comparisons with data for 1940—Continued

State and county	Average borers per 100 plants 1940	Average borers per 100 plants 1941	State and county	Average borers per 100 plants 1940	Average borers per 100 plants 1941
Number	Number	Number	Number	Number	Number
<u>Indiana (Cont'd):</u>			<u>Maryland:</u>		
Newton .....	—	4.4	Baltimore ...	—	24.2
Noble .....	82.9	29.9	Caroline ...	—	52.4
Owen .....	—	0.5	Carroll ....	—	1.2
Parke .....	—	1.6	Cecil .....	—	10.9
Porter .....	0.4	3.1	Charles ....	—	0
Pulaski .....	—	7.4	Dorchester ..	—	22.4
Putnam .....	—	1.7	Harford ....	—	35.1
Randolph .....	30.9	37.5	Kent .....	—	50.2
Rush .....	21.0	47.5	Queen Annes.	—	8.8
St. Joseph ...	3.8	3.8	Somerset ...	401.5	15.8
Shelby .....	11.4	22.7	Talbot .....	—	100.0
Starke .....	0.6	20.1	Wicomico ...	45.4	61.2
Steuben .....	155.8	46.4	Worcester ...	259.1	50.4
Tippecanoe ...	—	16.1			
Tipton .....	57.9	134.3	Average:		
Union .....	9.2	52.5	3 counties:	235.3	42.5
Vermillion ...	—	0.8	13 counties:	—	33.3
Vigo .....	—	1.3			
Wabash .....	53.8	35.4	<u>Massachusetts:</u>		
Warren .....	—	22.2	Essex .....	137.8	21.0
Wayne .....	101.7	50.2	Franklin ...	89.0	3.8
Wells .....	343.6	53.4	Hampden ....	130.6	21.8
White .....	—	40.6	Hampshire ...	65.2	26.4
Whitley .....	89.0	25.3	Middlesex ...	220.2	16.4
			Norfolk ....	106.2	67.2
			Worcester ...	86.8	7.2
Average:					
35 counties:	77.4	45.6	Average:		
62 counties:	—	34.9	7 counties:	119.4	23.4
<u>Maine:</u>			<u>Michigan:</u>		
Androscoggin..	0.5	0.4	Genesee ....	399.6	3.4
Cumberland ...	2.9	5.0	Gratiot ....	516.2	93.0
Franklin .....	1.6	1.0	Huron .....	352.6	137.6
Hancock .....	0	.2	Lapeer .....	288.2	7.8
Kennebec .....	.1	5.5	Lenawee ....	130.0	102.0
Knox .....	.9	.1	Macomb .....	473.4	22.4
Lincoln .....	.7	2.0	Monroe .....	166.4	93.2
Oxford .....	.1	.5	Oakland ....	171.8	10.4
Penobscot ....	.5	.5	Saginaw ....	369.4	110.6
Piscataquis ...	1.3	0	St. Clair ...	283.2	45.8
Sagadahoc ....	1.5	2.0	Sanilac ....	512.0	15.8
Somerset .....	2.8	.8	Tuscola ....	404.2	34.4
Waldo .....	.5	.3	Wayne .....	132.6	29.2
York .....	17.1	2.2			
Average:			Average:		
14 counties:	2.2	1.5	13 counties:	323.0	54.3

Table 2.—Data on European corn borer abundance in corn, fall of 1941, and comparisons with data for 1940—Continued

State and county	Average borers per 100 plants		:	State and county	Average borers per 100 plants	
	1940	1941			1940	1941
	Number	Number			Number	Number
<u>New Hampshire:</u>			:	<u>New York:</u>		
Belknap .....	3.4	4.2	:	Albany .....	14.8	3.6
Carroll .....	13.6	6.6	:	Columbia .....	521.8	8.8
Cheshire .....	56.6	5.2	:	Dutchess .....	82.2	2.0
Grafton .....	13.2	2.0	:	Greene .....	83.4	3.0
Hillsboro .....	24.4	1.6	:	Monroe .....	297.8	20.6
Merrimack .....	9.0	3.2	:	Nassau .....	742.2	257.2
Rockingham .....	54.0	4.8	:	Niagara .....	709.6	91.2
Strafford .....	10.0	2.4	:	Orange .....	20.2	0.4
Sullivan .....	122.2	18.0	:	Orleans .....	577.2	96.0
Average:			:	Putnam-West-		
9 counties --	34.0	5.3	:	chester .....	116.0	70.6
			:	Rensselaer ..	54.4	6.2
			:	Saratoga .....	11.8	1.2
<u>New Jersey:</u>			:	Schenectady..	8.2	0.4
Atlantic.....	9.6	72.8	:	Suffolk .....	243.8	64.8
Bergen .....	234.0	108.8	:	Ulster .....	121.2	2.0
Burlington .....	505.4	235.6	:	Wayne .....	456.0	18.0
Camden .....	98.8	121.8	:			
Cape May .....	36.2	22.2	:	Average:		
Cumberland .....	58.6	31.0	:	16 counties:	253.8	40.4
Essex-Union ...	106.2	101.4	:			
Gloucester .....	101.4	82.0	:	<u>North Carolina:</u>		
Hunterdon .....	8.0	46.2	:	Camden .....	-	17.4
Mercer .....	187.2	610.6	:	Currituck ...	-	4.8
Middlesex .....	105.0	457.8	:	Pasquotank ..	-	11.6
Monmouth .....	337.4	167.6	:			
Morris .....	53.6	36.0	:	Average:		
Ocean .....	34.8	94.9	:	3 counties:	-	11.3
Passaic .....	46.6	61.4	:			
Salem .....	58.0	111.2	:			
Somerset .....	4.0	33.0	:			
Sussex .....	4.6	2.8	:			
Warren .....	31.8	13.4	:			
Average:			:			
19 counties :	109.0	126.9	:			



Table 2.—Data on European corn borer abundance in corn, fall of 1941, and comparisons with data for 1940—Continued

State and county	Average borers per 100 plants		State and county	Average borers per 100 plants	
	1940	1941		1940	1941
	Number	Number		Number	Number
<b>Ohio:</b>			<b>Pennsylvania:</b>		
Adams .....	-	1.6	Berks .....	-	22.8
Allen .....	273.4	73.6	Bucks .....	117.0	117.0
Athens .....	-	0.4	Chester .....	-	29.2
Auglaize .....	367.6	177.4	Delaware .....	-	129.8
Brown .....	-	0.4	Lancaster .....	-	24.4
Crawford .....	256.8	32.0	Montgomery .....	-	130.8
Defiance .....	96.6	69.0	Average:		
Delaware .....	105.4	57.0	1 county .....	117.0	117.0
Fairfield .....	-	4.8	6 counties .....	-	75.7
Fayette .....	-	16.6			
Fulton .....	350.4	267.0			
Gallia .....	-	0	<b>Rhode Island:</b>		
Hancock .....	427.6	136.2	Bristol-		
Hardin .....	379.0	207.4	Newport.....	287.4	163.4
Henry .....	248.0	119.2	Kent .....	237.0	14.4
Highland .....	-	0.4	Providence .....	255.8	5.2
Hocking .....	-	0	Washington .....	278.2	47.2
Jackson .....	-	0	Average:		
Logan .....	276.0	316.6	4 counties .....	264.6	57.6
Lucas .....	253.4	200.2			
Marion .....	247.8	248.6	<b>Vermont:</b>		
Meigs .....	-	0	Addison.....	17.0	9.6
Mercer .....	201.6	272.4	Bennington .....	178.4	8.0
Morrow .....	293.6	109.4	Calédonia .....	2.8	5.4
Ottawa .....	184.0	39.0	Chittenden .....	52.0	21.4
Paulding .....	393.6	442.4	Essex .....	-	0.4
Perry .....	-	0.4	Franklin .....	7.6	18.8
Pickaway .....	-	6.0	Grand Isle .....	20.4	26.0
Pike .....	-	0.4	Lamoille .....	9.6	7.6
Putnam .....	391.2	223.4	Orange .....	6.6	6.0
Ross .....	-	4.6	Orleans .....	-	5.0
Sandusky .....	131.2	72.2	Rutland.....	48.6	24.0
Scioto .....	-	0.4	Washington.....	8.2	35.4
Seneca .....	238.0	81.2	Windham .....	110.2	12.4
Shelby .....	146.6	210.2	Windsor .....	13.4	24.6
Union .....	165.6	121.6	Average:		
Van Wert .....	453.0	307.6	12 counties .....	39.6	16.6
Vinton .....	-	0	14 counties .....	-	14.6
Williams .....	293.0	18.4			
Wood .....	189.6	98.6			
Wyandot.....	309.6	13.6			
Average:					
25 counties .....	266.9	156.8			
41 counties .....	-	96.5			



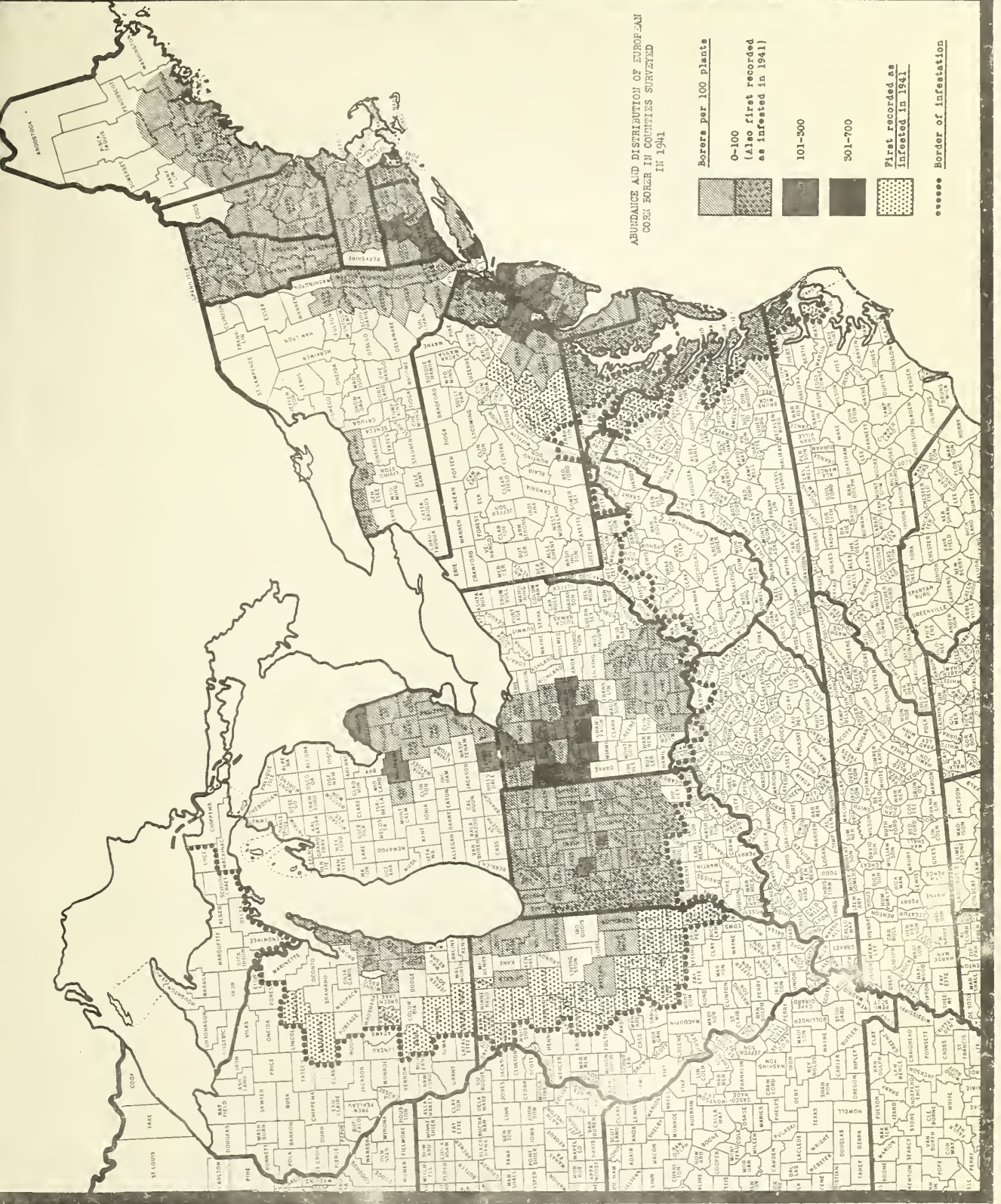
Table 2.—Data on European corn borer abundance in corn, fall of 1941, and comparisons with data for 1940—Continued

State and county	Average borers per 100 plants	
	1940	1941
	Number	Number
<u>Virginia:</u>		
Accomac .....	633.3	26.8
Isle of Wight .....	—	0.8
Nansemond .....	—	56.0
Norfolk .....	7.2	3.8
Northampton .....	392.5	60.2
Princess Anne .....	601.2	29.4
Essex-Gloucester )		
Mathews-Middlesex )...	—	6.4
Elizabeth City )		
James City )		
New Kent-York )....	—	2.0
Lancaster )		
Northumberland )		
Richmond )		
Westmoreland )....	—	4.8
Average:		
4 counties .....	403.6	30.1
6 counties and		
3 county groups ....	—	21.1
<u>Wisconsin:</u>		
Calumet .....	—	2.0
Door .....	—	1.6
Fond du Lac .....	—	1.2
Kewaunee .....	—	2.0
Manitowoc .....	—	24.4
Ozaukee .....	14.8	20.4
Sheboygan .....	—	47.8
Washington .....	11.8	5.6
Average:		
2 counties .....	13.3	13.0
8 counties .....	—	13.1

Table 3. -- Data on European corn borer abundance in early market sweet corn, summers of 1940 and 1941

State and county	1940		1941	
	Fields	Average borers per 100 plants	Fields	Average borers per 100 plants
	Number	Number	Number	Number
<u>Connecticut:</u>				
New Haven .....	25	493	25	109
<u>Maine:</u>				
Androscoggin .....	25	16	11	2
Cumberland .....	20	36	25	3
York .....	25	33	25	7
<u>Massachusetts:</u>				
Middlesex .....	—	—	25	22
<u>Michigan:</u>				
Monroe .....	—	—	5	1,067
<u>New Jersey:</u>				
Burlington .....	29	510	29	894
<u>New York:</u>				
Albany .....	7	509	6	169
Columbia .....	11	425	4	239
Madison .....	—	—	1	117
Monroe .....	—	—	9	493
Niagara .....	—	—	9	674
Onondaga .....	—	—	1	280
Ontario .....	—	—	2	80
Orleans .....	—	—	4	563
Rensselaer .....	2	392	2	134
Saratoga .....	7	394	2	250
Schenectady .....	4	339	6	122
Wayne .....	—	—	6	372
<u>Ohio:</u>				
Lucas .....	25	497	25	1,235
<u>Vermont:</u>				
Windham .....	—	—	10	60

ABUNDANCE AND DISTRIBUTION OF EUROPEAN  
CORN BORER IN COUNTIES SURVEYED  
IN 1941









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EX 831B  
cap. 3  
1942



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BUREAU OF  
ENTOMOLOGY AND PLANT QUARANTINE  
UNITED STATES  
DEPARTMENT OF AGRICULTURE  
AND  
THE STATE ENTOMOLOGICAL  
AGENCIES COOPERATING



# INSECT PEST SURVEY BULLETIN

Vol. 21

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November 8, 1941

REMEMBER PEARL HARBOR

## RECORDS ON DISTRIBUTION OF THE POTATO TUBER WORM (GHORIMOSCHEMA OPERCULELLA ZELL.) IN THE UNITED STATES

The following is a tabulation of the data available to the Bureau of Entomology and Plant Quarantine on the known occurrence of the potato tuber worm in the United States up to December 1, 1941. These data constitute a compilation of the records on file at this time and do not necessarily indicate the areas where this insect is known to be established.

### ALABAMA

- Cullman, 1939: Reported on potato at Cullman, 9-13-39. Insect Pest Survey 19: 499, 1939. (J. M. Robinson.)
- We have no additional records. (J. M. Robinson Oct. 7, 1941.)
- Found at Cullman in 1939 in potatoes shipped from Hastings, Fla. We have never had any reports of damage to growing potatoes. (B. P. Livingston, Oct. 7, 1941.)

### ARIZONA

- Phoenix, 1898: Specimens (3 adult) in the U. S. Museum, March 7, 1898.
- Tempe ----- Specimens (1 adult), rustica leaf miner in the U. S. Museum. (K. McKinney.)
- Neither Dr. L. P. Wehrle nor I have any records of the insect in Arizona. (C. T. Vorhies, Oct. 10, 1941.)
- O. C. Bartlett, in his list of Arizona Plant Pests, under date of Oct. 24, 1927, reports this insect. (J. L. E. Lauderdale, Sept. 29, 1941.)

ARIZONA - (Continued)

Prescott, 1941: H. G. Johnston, extension entomologist, informed me that he took specimens near Prescott, in Yavapai County, this year. (J. L. E. Lauderdale, Sept. 29, 1941.)

-----      The pest is apparently of no economic importance in the State, as we have not had any complaints. Almost all of our potatoes are grown in the colder areas of the State. (J. L. E. Lauderdale, Sept. 29, 1941.)

ARKANSAS

-----      Has not been found in Arkansas so far as anyone in the Department of Entomology, University of Arkansas, knows. (W.J. Baerg, Sept. 23, 1941.)

-----      The Plant Board does not have any records. (P. H. Miller, Sept. 22, 1941.)

CALIFORNIA

General, 1856: A permanent pest in California. It was recorded in the literature as early as 1856 and has been reported frequently to the present time, especially during the last several years.

General      Recorded from the following counties: Alameda, Contra Costa, Eldorado, Kern, Los Angeles, Modoc, Monterey, Napa, Orange, Riverside, Sacramento, San Benito, San Bernardino, San Diego, San Francisco, San Joaquin, San Luis Obispo, San Mateo, Santa Barbara, Santa Clara, Santa Cruz, Shasta, Sonoma, Stanislaus, Ventura, Yolo.

Kern County:      Very abundant throughout the large Kern County potato areas, and annual losses are greater than from any other insect. (W. B. Herms, Oct. 9, 1941.)

-----      A survey of the five potato-growing districts in Humboldt County was made in 1941 and no specimens found. Not believed to be present in Siskiyou County. (D. B. Mackie, Sept. 23, 1941.)

COLORADO

Colorado given as distribution. U. S. Dept. Agr. Year Book 1898. (L. O. Howard.)

Fort Collins      Specimens from. U. S. Farmers' Bul. 557. 1913. (F. H. Chittenden.)

Greeley, 1913: Correspondent sent specimens from Greeley, Sept. 27, 1913, with statement that "these worms bore into the skin and cause the potato to be worn tracked." (Det. by F. H. Chittenden.)



COLORADO - (Continued)

Otero: ----- U. S. Dept. Agr. Bul. 427, 1917, by J. E. Graf:  
County: Otero County mapped as a place of establishment  
on potato.

Rocky Ford: --- Proc. U. S. Natl. Mus. 53: 199, 1917. Parasite  
reared.

----- Has been introduced in potatoes shipped from  
infested areas, but so far as we know, has not  
gained a foothold. (C. R. Jones, Oct. 20, 1941.)

Olathe, 1941: I am reporting a pick-up of the insect in one  
shed on California Mesa, northwest of Olathe, and  
in one wholesale house at Olathe during the spring  
of 1941. Every potato district in the State was  
surveyed during the spring of 1941 with negative  
results, with exception of the two named cases. I  
am informed that infested potatoes from the California  
Mesa were received at State College. (F. H. Gates,  
Nov. 13, 1941.)

CONNECTICUT

The insect has not been found to the best of our  
knowledge. (R. B. Friend, Sept. 30, 1941.)

DELAWARE

Newark, 1931: Specimens taken from stored potatoes at College Farm,  
Agr. Expt. Sta., Newark. Moths emerged April 14-18,  
1931. (Determined by A. Busck.) Insect Pest Survey  
Bul. 11: 205, 1931. (L. A. Stearns.)

----- No report since the note in the Insect Pest Survey  
Bulletin report in 1931. (L. A. Stearns, Sept. 18,  
1941.)

----- 1941: Specimens of infested potatoes received from Dover,  
where they had been stored. (L. A. Stearns, Oct. 8,  
1941.) Insect Pest Survey Bul., 21: 642, 1941.

----- I have had  
opportunity to investigate the infestation at Dover.  
The reporter told me that he had observed no damage  
in his potato patch, which is within the city limits.  
Infestation apparently limited to potatoes in the  
cellar. He states that he purchased some southern-  
grown potatoes 3 years ago at a roadside market in  
this State and since that time potatoes stored in  
his cellar have become infested. (L. A. Stearns, Nov.  
7, 1941.)

FLORIDA

- Gainesville, 1898: One moth specimen in U. S. Natl. Museum. Tobacco leaf miner, 8-20-1898.
- Lake Alfred, 1929: Adult specimens in U. S. Natl. Museum, potato, April 20 to May 4, 1929. (L. J. Bottimer.)
- Lake City: ---- On tobacco at Lake City; on eggplant in De Soto County and tomato in the State. Fla. Bul. 48: 178, 1898.
- Gadsden County, 1906: On tobacco. U. S. Dept. Agr. Bul. 67: 110, 1907.
- Dade City: ---- Infestation on tobacco from 1906 to 1910. U. S. Dept. Agr. Bul. 59, 1914.
- Brooksville, 1909: Correspondent sent specimens to Bureau with statement that the insect damaged tobacco this season. (Det. by F. H. Chittenden.)
- Quincy, 1913: Specimens (moth) in the U. S. Natl. Museum, tobacco leaf miner, August 27, 1913. (S. E. Crumb.)
- Duval, Gadsden, Pasco, De Soto, Dade, Lake, and Columbia Counties: ---- Duval County mapped as place of establishment on potato; and Gadsden, Pasco, De Soto, Dade, Lake, and Columbia Counties on other food plants. U. S. D. A. Bul. 427: 1917. (J. E. Graf.)
- Greenville, 1924: Slight damage in fields of bright leaf tobacco in May. Insect Pest Survey Bulletin 4: 88, 1924. (F. S. Chamberlin.)
- Lake Worth) 1931: Very abundant on potato in storage at Kissimmee and Lake Worth. Insect Pest Survey Bul. 11: 369, 1931. (E. W. Berger and G. D. Merrill, July 1931.)
- Kissimmee )
- Fort Myers, 1931: Sent in from Fort Myers, where it was doing considerable damage to potatoes in storage. Insect Pest Survey Bul. 11: 369, 1931. (J. R. Watson.)
- Raiford ) 1932: Shipment of potatoes from Raiford received and held at Jacksonville, where infestation was discovered. Potatoes evidently infested when received. Insect Pest Survey Bul. 12: 62, 1932. (C. F. Stahl.)
- Jacksonville )

FLORIDA - (Continued)

Osceola, Polk,  
Orange, Seminole,  
and Manatee Coun-  
ties: -----

Investigations carried on in 1937, with living larvae from material sent to the State Plant Board taxonomist, G. B. Merrill, by inspectors working in Osceola, Polk, Orange, and Seminole Counties, and from material brought by J. R. Watson from Manatee County. Fla. Ent. 20: 33, 1937.

Fort Myers, 1939:

Field infestation. (A. C. Brown, Sept. 1941.)

Quincy, 1921-41:

Reported to the Insect Pest Survey from tobacco in Quincy almost every year for the last 20 years, 1921-41. (F. S. Chamberlin, 1941.)

General

1929  
to  
1940

Following reports submitted by A. C. Brown, September 24, 1941, as being taken from the records in file at the Fla. Agr. Expt. Sta.; at Sebring, 1929, in stored potato; at Kissimmee, 1930, stored potato; at Lake Worth, 1931, in stored potato; De Land, 1933, on potato; Montverde, Dania, and Bunnell, 1934, on stored potato; Waldl and Winter Haven, 1935, stored potato; Kissimmee and Bartow, 1937, on stored potato; Arcadia and Bunnell, 1938, on stored potato; Belle Glade, 1939, on stored potato; Fort Myers, 1939, infestation in potatoes running over grading belt; Miami, 1940, in stored potato.

Fort Myers, 1941:

Infestation in old fields and in old potatoes in packing houses. (A. C. Brown, 9-24-41.)

GEORGIA

I am fairly familiar with this insect and have looked for it but have not seen it; no complete survey has been made. (T. O'Neill, Feb. 2, 1931.)

Norman Park, 1935:

One infestation of the splitworm on tobacco observed this season at Norman Park. Insect Pest Survey Bul. 15: 253, 1935. (F. S. Chamberlin.)

Fitzgerald, 1941:

Specimens collected in tobacco at Fitzgerald, July 24. (Det. by U. S. Natl. Mus.) (M. Murphy.)

-----  
I have no records of this insect in Georgia, although I have never searched for it. (T. L. Bissell, Sept. 19, 1941.)

IDAHO

-----

We have not been able to find this insect.  
(W. E. Shull, Sept. 23, 1941.)

-----

We have no record. (J. Andrasen, Sept. 22,  
1941.)

ILLINOIS

Worden, 1930:

Sent to us in a cooked potato in September.  
The only record in Illinois during the last  
5 years. (W. P. Flint, Nov. 1930.)

-----

The above-cited record is the only one we  
have received and we have made several efforts  
to check on its occurrence. (W. P. Flint,  
Sept. 20, 1941.)

INDIANA

Pleasant Lake, 1917:

Correspondent sent specimens to Bureau with  
statement that it was found in this year's  
potatoes, October 6, 1917. (Det. by F. H.  
Chittenden.)

New Haven )  
Fort Wayne ) 1930:

Infested potatoes received from Fort Wayne,  
shipped there from Virginia. Home-grown  
potatoes purchased near New Haven had the  
same infestation. Insect Pest Survey Bul.  
10: 381, 1930. (J. J. Davis.)

-----

The above record is the only one for Indiana.  
(J. J. Davis, 1941.)

IOWA

Iowa City )  
Sioux City ) 1918:

Three adult specimens from Iowa City. G. G.  
Ainslie. (No food or date.) Sixteen adult  
specimens from Sioux City, C. W. Ainslie.  
(No food or date.)

Ames -----

One adult specimen in U. S. Museum, Ames,  
August 23, 1918, A. W. Lindsey. (No food  
plant.)

Des Moines,  
Nevada, Ames, 1933:

Found in every potato patch examined in  
vicinities of Des Moines, Nevada, and Ames,  
July 27, 1933. Insect Pest Survey Bul. 13:  
203, 1933. (C. J. Drake.) (Det. by C.  
Heinrich.)

----- 1933:

Specimens taken from various points in eastern  
half of State, June 12, 1933. Jour. Econ. Ent.  
26: 1,173, 1933. (H. D. Tate.)



IOWA - (Continued)

Greene and  
Story Counties, 1934:

Found in potato patches in Greene and Story Counties, August 2, 1934. Although established in State for several years, it has not been observed to do any commercial damage. Insect Pest Survey Bul. 14: 226, 1934. (C. J. Drake.)

Davenport, Council  
Bluff, Osage,  
Saint Ansgar, 1934:

Specimens taken in potatoes at Davenport during the latter part of July; in potatoes at Council Bluff and in the vicinities of Osage and Saint Ansgar during the first week in August. (C. J. Drake, 1941.)

Ames ) 1935, 1936,  
Des Moines) and 1937

We found it in potatoes in Ames and Des Moines in 1935, 1936, and 1937. (C. J. Drake, 1941.)

This year we looked for the insect working as a leaf miner in Ames, but failed to find it. We have never found it breeding in the tubers. Although potatoes at Ames were exposed late in July and in August to obtain specimens, none were found. (C. J. Drake, 1941.)

KANSAS

Ford County: ----

On map, indicated as introduced but not established. No reference to food plant. U. S. Dept. Agr. Bul. 427, 1917. (J. E. Graf.)

----- ----

No record of infestation of potato or tobacco growing in Kansas. On June 7, 1940, a carload of new potatoes, shipped from California to Salina, Kans., was seriously infested with larvae. We refused to permit the potatoes to be delivered or sold within the State. (G. A. Dean, 1941.)

----- ----

No specimens in our collection that were taken in the State. (H. B. Hungerford, 1941.)

KENTUCKY

Owensboro,  
Utica,  
Lexington,  
Bremen, 1931:

Specimens taken from tobacco received from Owensboro, Utica, Lexington, and Bremen. First appearance of pest in State. Insect Pest Survey Bul. 11: 297, 1931. (W. A. Price.)

Daviess,  
Fayette,  
Henderson  
Counties: ----

Clipping, Courier Jour. June 25, 1931. Discovered in several tobacco-growing sections of the State, including Daviess, Fayette, and Henderson Counties.

KENTUCKY - (Continued)

Daviess, Insect found on tobacco in Daviess, Fayette,  
Fayette, Henderson, and Muhlenberg Counties in 1931.  
Henderson, and Very little damage done at that time, and  
Muhlenberg insect not observed on tobacco or potato  
Counties: 1931 since. (W. A. Price, 1941.)

LOUISIANA

Florence, 1913: Correspondent sent specimens from potato to  
the Bureau and asked for remedy. (Det. by  
F. H. Chittenden.)

Cameron and Vermilion Parishes, 1917: Cameron Parish mapped as permanent establish-  
ment on food not named; Vermilion Parish  
mapped as permanent establishment on potato.  
U. S. Dept. Agr. Bul. 427, 1917. (J. E. Graf.)

Saint Benedict, 1938: Collected at Saint Benedict, 8-28-38. Insect  
Pest Survey Bul. 18: 544, 1938. (C. O. Eddy.)  
(Det. by A. Busck.)

Saint James, A rather general survey conducted in 1941 over  
Saint John the State as a whole, more intensive work being  
Baptist, Terre- done in the commercial potato-producing sections.  
bonne, Lafourche, Following infestations recorded: Six infested  
and Iberville properties in Saint James Parish; 3 in Saint  
Parishes, 1941: John the Baptist Parish; 58 in Terrebonne Parish;  
54 in Lafourche Parish; and 1 in Iberville Parish.  
(W. E. Anderson, 1941.)

MAINE

----- Hancock County mapped as introduced without estab-  
----- lishment; no reference to food plant. U. S. Dept.  
Agr. Bul. 427, 1917. (J. E. Graf.)

----- We have never found a specimen in the State.  
----- (S. L. Painter, 1941.)

----- Accession records and inquiries by other members  
----- of the Department show no record of occurrence  
in Maine. (F. H. Lathrop, 1941.)

MARYLAND

District of The insect has been found as far north as the  
Columbia ----- District of Columbia on eggplant and ground-  
cherry. U. S. Farmers' Bul. 557, 1913.

Howard, Montgomery, Mapped as permanently established on plants other  
and Prince Georges than potato in the District of Columbia, part of  
Counties Montgomery County, almost covering Howard County,  
District of Columbia----- and in some of Prince Georges County. U. S. Dept.  
Agr. Bul. 427, 1917. (J. E. Graf.)

MARYLAND - (Continued)

Pocomoke, 1923:

Larvae found in storage and in field. (E. N. Cory, Dec. 20, 1923.)

General -----

Since 1923 it has been recorded repeatedly in the literature and in reports to the Insect Pest Survey. Reports have been received from the following counties: Baltimore, Calvert, Caroline, Cecil, Frederick, Prince Georges, Queen Annes, Saint Marys, Somerset, Talbot, Wicomico, and Worcester.

-----

No outbreak since 1930. Of no commercial consequence in the State, except under unusually favorable weather conditions. No infestation in potatoes seen in 1941. Marketable leaves of tobacco never attacked. Survey of fields in June showed no infestation in Worcester County. (E. N. Cory, 1941.)

MASSACHUSETTS

-----

Mapped as introduced but not established; no food reference. Dot seems to be over Boston. U. S. Dept. Agr. Bul. 427, 1917. (J. E. Graf.)

-----

Presence of insect never noted in the State, either through personal observation or by report. Similar report from field station at Waltham. (A. I. Bourne, 1930.)

-----

Inquiries over the State, including the field station at Waltham and H. J. Franklin at East Wareham, indicate no record in Massachusetts. Typical injury found in imported seed potatoes in Hampden County about 10 years ago, but no specimens present. (A. I. Bourne, 1941.)

MICHIGAN

-----

During late August 1932, specimens were sent from a potato dealer at Owosso; potatoes found to have been shipped from Virginia. Mich. Quar. Bul. 15: 70, 1932. (R. H. Pettit.)

-----

The above record is the only one of occurrence in Michigan. (R. Hutson, 1941.)

-----

To my knowledge, specimens have never been found in Michigan, only on shipped-in stock. (C. A. Boyer, 1941.)



# MINNESOTA

Saint Paul,  
Minneapolis, 1940:

Found in potatoes stored in warm cellars in two localities about 15 or 20 miles apart in the vicinity of Saint Paul and Minneapolis. First actually determined in 1940 while examining tubers for pit scab. Subsequent examination of several commercial potato cellars gave negative results. Insect Pest Survey Bul. 21: 99, 1941. (A. A. Granovsky, April 15, 1941.)

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Found only on University Farm property.  
(A. G. Ruggles, 1941.)

# MISSISSIPPI

Gulfport, 1913:

Correspondent sent specimens to Bureau and asked for remedy, November 11, 1913. (Det. by F. H. Chittenden.)

Harrison County, 1940:

Specimens, apparently this species, sent with statement that potatoes were destroyed in storage on farm in September. (C. Lyle.)

Hancock County, 1940:

Specimens found, on September 26, 1940, in Hancock County on a few potatoes held over from the spring crop. (C. Lyle, 1941.)

Harrison County, 1941:

Specimens received from three farms. Insect Pest Survey Bul. 21: 587, 1941. (C. Lyle.)

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Found on August 30, 1941, on one farm in Harrison County, and subsequently on two other farms. Considered of minor importance on potatoes in this section. (C. Lyle, 1941.)

# MISSOURI

Platte County, 1929:

Found on tobacco. (F. W. Poos.)

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This office has no authentic record of this insect on either potato or tobacco. (L. Haseman, 1941.)

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No record of this insect in Missouri. (J. A. Denning, 1941.)

# MONTANA

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Lewis and Clark County mapped as place of introduction but no establishment. (No reference to food plant.) U. S. Dept. Agr. Bul. 427, 1917. (J. E. Graf.)

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No records at Bozeman of this insect having been taken in the State. (H. B. Mills, 1941.)

MONTANA - (Continued)

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Insect intercepted on shipments of potatoes into Montana, principally from California, but no record of its being intercepted in local potatoes. (G. L. Knight, 1941.)

NEBRASKA

Cass County, 1939:

Found to have severely injured about 125 bushels of potatoes in Cass County, September 28, 1939. First record of this pest for the State. Insect Pest Survey Bul. 19: 563, 1939. (M. H. Swenk.)

Cass County, 1939:

Not found in Nebraska until 1939, when it was reported as ruining the potato crop in Cass County. Evidently introduced in seed from out of the State. Nebr. State Bd. Agr. Rpt., 1940: 445. (O. S. Bare.)

Lincoln, 1940:

Specimens collected from potatoes near Lincoln, producing more or less characteristic damage, August 31, 1940. Insect Pest Survey Bul. 20: 452, 1940. (H. D. Tate.) (Det. by C. Heinrich.)

Elmwood)  
Lincoln)

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Two infestations in the State, one at Elmwood in 1939 and one near Lincoln in 1940. Survey in location near Lincoln in 1941 showed no specimens nor injury. No commercial damage found in 1940 nor in 1941 during surveys in western Nebraska. (H. D. Tate and L. M. Gates, 1941.)

NEVADA

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No records of field or storage infestations in the State. (G. G. Schwäis, 1941.) No information on distribution of the insect. (S. B. Doten.)

NEW HAMPSHIRE

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No record of the insect ever having been taken, either in potato or tobacco, in New Hampshire. No recent search has been made. (J. G. Conklin, 1941.)

NEW JERSEY

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Insect found on potatoes coming into New Jersey from the Eastern Shore of Virginia and Maryland, but no infestations in New Jersey. N. J. State Agr. Bul. 16: 154, 1931. (H. B. Weiss.)

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Insect not established in New Jersey to my knowledge. Intercepted in 1924 and in 1930 in seed potatoes from Maryland and Virginia. Surveys reveal no infestations in New Jersey. (H. B. Weiss, 1941.)

NEW JERSEY -- (Continued)

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Accession records as far back as 1910 indicate no record of occurrence in New Jersey. (B. B. Pepper, 1941.)

NEW MEXICO

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Inspections at harvest and in storage show no infestations in the State. (J. R. Eyer, 1941.) So far as I know, this insect does not occur in the State. (R. F. Crawford, 1941.)

NEW YORK

New York

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Specimens received from New York City, on potato; not acclimatized, so far as is known. U. S. Farmers' Bul. 557, 1913. (F. H. Chittenden.)

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Mapped as introduced into New York City, but not established; no reference to food plant. U. S. Dept. Agr. Bul. 427, 1917. (J. E. Graf.)

Rochester, 1937:

Outbreak discovered in a potato storage in Rochester in 1937. Outbreak eradicated. No location known where this insect is established. (A. B. Buchholz, 1941.)

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Inquiries in several counties indicate no infestations. (W. A. Rawlins, 1941.)

NORTH CAROLINA

Kinston

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Specimens in the U. S. Natl. Museum, one from tobacco at Kinston, no date. (G. A. Runner.)

Raleigh, 1896:

Specimens from tobacco at Raleigh, June 27, 1896 and August 5, 1896. (T. Pergande.)

-----  
A native moth, feeding on Solanum carolinense and tobacco in parts of North Carolina by leaf mining. N. C. Bul. 141: 133, 1897. (G. McCarthy.)

Beaufort, Bertie,  
Camden, Currituck,  
Franklin, Gran-  
ville, Halifax,  
Northampton,  
Pasquotank, Vance,  
Warren, and  
Washington Coun-  
ties: -----

Intensive survey of northern and eastern parts of State in fall of 1926 to determine presence or absence of insect. Found in small numbers in several counties. Observed breeding on potato, tobacco, and wild hosts. Not a pest of serious proportions, except under favorable weather conditions. Intercepted frequently on shipments into the State. N. C. Dept. Agr. Bien. Rpt. 1925-26: 52-53. (R. W. Leiby.)



NORTH CAROLINA - (Continued)

- Craven County, 1930: Heavily infested potatoes sent in from Craven County, September 25, 1930. Insect Pest Survey Bul. 10: 381, 1930. (C. H. Drannon.)
- Kinston, 1932: Infested potatoes sent in with statement that it was very destructive last year, March 9, 1933. Insect Pest Survey Bul. 13: 83, 1933. (C. H. Drannon.)
- Pasquotank County, 1935: Infested potatoes sent in from Pasquotank County, October 16, 1935. (C. H. Drannon.)
- Oxford, 1937: Light damage to tobacco by this insect, which first appeared on June 14, 1937. Insect Pest Survey Bul. 17: 247, 1937. (J. U. Gilmore.)
- Beaufort,  
Carteret,  
Lenoir and  
Wake Counties: ---- Found on tobacco at Raleigh and Kinston; found breeding in potato in Beaufort and Carteret Counties. H. C. Dept. Agr. Div. Ent., Insects of H. C., 303, 1938. (C. S. Brinley.)
- Gaston County, 1938: Reported as attacking potatoes and doing serious damage, September 30, 1938. (Z. P. Metcalf.)
- Greenville ---- In addition to the counties already cited in 1926, this insect has been found at Greenville, in Pitt County. (C. S. Brinley, 1941.) Not a pest of potatoes in the State as the market crop is harvested before the tubers are affected; there are no late potatoes in part of State where it is known to occur. (C. S. Brinley, 1941.)
- Nash, Edgecombe, ---  
Wilson, Wayne,  
Johnston, Harnett,  
Cumberland, and  
Robeson Counties: ---- Irregularly of minor importance to tobacco in counties of Caswell, Person, Granville, and Vance, and in the coastal plains area. Observed in the past in eastern Wake County, and in Franklin, Nash, Edgecombe, Wilson, Wayne, Johnston, Harnett, Cumberland, and Robeson Counties. In my experience, never a serious pest on potato, but noticed in Currituck, Camden, Beaufort, Craven, and Pamlico Counties. (Z. P. Metcalf, 1941.)

NORTH DAKOTA

- ----- Specimens in potato at Larimore, August 8, 1912, intercepted in shipment from California. U. S. Farmers' Bul. 557, 1913. (F. H. Chittenden.)
- ----- Chittenden's record is the only one I know of; no subsequent report, and intensive potato-insect research in the last few years has not revealed its presence. (H. S. Telford, 1941.)

OHIO

Shelby, 1915:

Specimens received from Shelby, April 17, 1915. We have been almost sure of its presence in Ohio before, but this is the first definite instance. Ohio Hort. Soc. Rpt. 49, 1916. (H. A. Gossard.)

Columbus, 1931:

A few larvae nearly full grown and empty mines in potato leaves found in field at Columbus, June 29, 1931. (F. W. Poos.) (Det. by A. Busck.)

Our records show but three authentic references to this insect in Ohio, the one from Shelby in 1915 not making clear whether the infested potatoes were home grown. The other two instances were interceptions in shipments from out of the State. (J. S. Houser, 1941.)

OKLAHOMA

Museum records show no report of occurrence in Oklahoma. (F. A. Fenton, 1941.)

OREGON

Eugene, 1914:

Correspondent sent specimens and asked for remedy, December 7, 1914. (Det. by F. H. Chittenden.)

Prairie City, 1915:

Correspondent sent specimens and asked for remedy, October 11, 1915. (Det. by F. H. Chittenden.)

Specimens sent without comment, April 1926. (D. C. Mote.) (Det. by A. Busck.)

No record or information of further occurrences, and no infestation known at present. (F. McKennon, 1941.)

Specimens taken in 1936 were intercepted at Portland in ship's stores. No infestation in Oregon to my knowledge. (D. C. Mote, 1941.)

PENNSYLVANIA

Oak Station, 1919:

Adult specimen in U. S. Natl. Museum, Oak Station, May 15, 1919. (F. Marloff.)

Lehigh County  
Shippensburg

In 1925 an infestation was found in a shipment of potatoes into Lehigh County. Origin of potatoes not known. During latter part of summer of 1930 potatoes containing heavy infestation were found near Shippensburg. These potatoes originated in Baltimore, Md. (H. E. Hodgkiss.)

PENNSYLVANIA - (Continued)

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- Surveys show that this insect is not established in the field, although several interceptions from Maryland and Virginia have been made. (T. L. Gurton, 1941.)
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- Other than the infestations in 1925 and 1930 which were eradicated, there are no records of infestation in the State. (H. E. Hodgkiss, 1941.)

RHODE ISLAND

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- We have never had any reports on this insect in the State. (A. E. Stene, 1930.)
- Wakefield, 1936:
- Only record I have is from our card file, of larva in potato tuber at Wakefield, January 1936. (C. C. Jennings, 1941.) (Det. by A. Busck.)

SOUTH CAROLINA

- Sandy Run, 1898:
- Did more damage to tobacco than all other insects combined in the neighborhood of Sandy Run, Lexington County, in 1898. U. S. Dept. Agr. Yearbook, 1898. (L. O. Howard.)
- 
- Listed as occurring in the State. U. S. Dept. Agr. Bul. 59, 1914.
- Charleston, 1941:
- This spring I found that potatoes left in the field over night were infested later in the season. (J. A. Berley, 1941.) (Det. by J. F. G. Clarke.)
- General, 1940:
- In the truck section of the State, the insects spread from a house where some mummied potatoes left from previous year were stored. Found in 1940. (W. C. Nettles, 6-26-41.)

SOUTH DAKOTA

- Elk Point, 1913; and 1918:
- Specimens in U. S. Natl. Museum, August 1913 and August 1918. (C. N. Ainslie.)
- Sioux Falls) Watertown )
- Our records show that the insect was taken in Watertown and Sioux Falls some years ago. (H. C. Severin, 9-30-41.)
- 
- We have communicated with the county agents of these counties, also with the county agent of Hamlin County, and they have no records of the insect in their counties. (H. C. Severin, Sept. 30, 1941.)



TENNESSEE

Clarksville, 1913:

Specimens in U. S. Natl. Museum of larvae and pupae from potato at Clarksville, Aug. 18, 1913. Also adults taken from Physalis, Solanum carolinense, tobacco, and potato, in Clarksville, July 5 to October 15, 1913. (S. E. Crumb.)

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Attacking tobacco at Clarksville. Leaf-mining Insects, 1928, p. 158. (Needham, Frost, and Tothill.)

Clarksville, 1931:

Attacking tobacco at Clarksville. More abundant than in average year. Insect Pest Survey Bul. 11: 548, 1931. (J. U. Gilmore and J. Milam.)

Lawrence County, 1938:

Reported in Lawrence County on potato, September 26, 1938. (G. M. Bentley.)

Robertson County -----

In the summer of 1939 I had the opportunity of meeting six outstanding tobacco growers of Robertson County. They said that the tobacco splitworm had been in the county several years, but damage was small. (G. M. Bentley, 1941.)

TEXAS

Fredericksburg, 1891  
and 1892:

In letter dated September 1893, a correspondent says the insect was very abundant in potato last year. Was present but not abundant in 1891 and 1892 in the same place. Insect Life, 6: 276, 1894. (L. O. Howard.)

Brownsville, 1898:

Larvae in the U. S. Natl. Museum, taken from egg-plant April 20, 1898.

Wharton, 1911:

Letter to Bureau says there was a serious outbreak at Wharton, July 19, 1911, in the potato-growing area.

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A correspondent of the Bureau writes: "These pests threaten to destroy the greater part of seed potatoes in storage at Eagle Lake, July 27, 1912. (No specimens.)

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-----  
A correspondent of the Bureau reports the insect on potato at Eagle Lake, July 3, 1913. (No specimens.)

Austin, 1913:

Correspondent of Bureau sent specimens taken from potato, and asked for remedy, August 18, 1913. (Det. by F. H. Chittenden.)

TEXAS -- (Continued)

Eagle Lake ) ----- Specimens received from potato at Eagle Lake and  
Hallettsville) U. S. Farmers' Bul. 557, 1913.  
(F. H. Chittenden.)

----- E. G. Smyth writes to the Bureau on control work  
of the insect in barreled potatoes at Eagle Lake,  
December 18, 1917.

Brownsville ----- Has been found mining the leaves of Physalis mollis  
and Solanum elaeagnifolium at Brownsville. U. S.  
Dept. Agr. Bul. 427, 1917. (J. E. Graf.)

Colorado, Dallas, Counties of Colorado, Dallas, Lavaca and Travis  
Lavaca, and Travis show the insect to be established on potato.  
Counties: ----- U. S. Dept. Agr. Bul. 427, 1917. (J. E. Graf.)

Industry, 1918: Specimens received from Austin County on potato,  
July 20, 1918. (F. B. Paddock.)

Matagorda County: ----- I remember that the insect has been found at  
various points in the southwestern part of the  
State, as far eastward as Matagorda County.  
Most often found in stored potatoes. (R. E.  
McDonald Aug. 31, 1929.)

Fort Worth: ----- The only record in our office is one from Fort  
Worth in an area where few potatoes are grown;  
probably a result of potatoes being shipped in.  
(F. L. Thomas, April 4, 1941.)

----- We make an annual inspection of the lower Rio Grande  
Valley potato-growing area and have no record of the  
pest being found in that section since our survey  
began. We found it in the Eagle Lake section.  
(J. M. Del Curto, Oct. 21, 1941.)

UTAH

Salt Lake City, 1913: Correspondent sent specimens to Bureau with state-  
ment that many thousand bushels of potatoes in Salt  
Lake City were rendered unsalable, November 1, 1913.  
(Det. by F. H. Chittenden.)

----- Cache County was mapped as a place of introduction,  
but no establishment. U. S. Dept. Agr. Bul. 427,  
1917. (J. E. Graf.)

Beryl, 1926 -1932: Between the years 1926 and 1932, two reports were  
received that this insect was present in Utah at  
Beryl, in Iron County. During the spring of 1933,  
additional verbal reports were received. (G. F.  
Knowlton, Sept. 23, 1941.)

UTAH - (Continued)

- ----- Specimens sent to the Bureau for determination, from Salt Lake City, November 19, 1931.
- ----- I received reports in 1933 that live tuber worms had been found in potatoes in the Salt Lake market, shipped from California. I examined potatoes from California in 1931 or 1932. Reports that trucks had also brought infested potatoes to the Provo, Brigham, Logan, Ogden, and Richfield markets were given to me during my inquiry. (G. F. Knowlton, 9-23-41.)
- Beryl, 1932: F. E. Stephens reports the occurrence of the insect in one potato field at Beryl. (G. F. Knowlton 4-28-32.)
- Beaver, Iron, and Washington Counties: ----- Three counties -- Washington, Iron, and Beaver -- are now quarantined because of the presence of the moth. (G. F. Knowlton April 18, 1934.)
- Enterprise, 1934: Damage to potato leaves was noted on volunteer potatoes at Enterprise, Washington County. (G. F. Knowlton, July 1934.)
- General, 1936: Very little injury observed or reported in infested section of Utah. (G. F. Knowlton, Oct. 10, 1936.) Insect Pest Survey Bul. 16: 407, 1936.
- General, 1938: Injury very rare in the infested area in 1938. (G. F. Knowlton, Dec. 3, 1938.)
- ----- Numerous reports from farmers and county agents in Beaver, Iron, and Washington Counties state that they have seen no moths, larvae, or damage for about 5 years. (G. F. Knowlton, Feb. 23, 1940.)
- ----- No reports of potato tuber moth infestation or injury in Utah have reached me during 1940 and 1941. (G. F. Knowlton, Sept. 20, 1941.)

VERMONT

- ----- We have no record of the potato tuber worm in the State. (H. L. Bailey, Oct. 1, 1941.)

VIRGINIA

Norfolk

- Eight specimens in U. S. Natl. Museum, collected at Norfolk -- one on horsenettle, one on potato, two on tobacco, and four on eggplant. No date given.



VIRGINIA - (Continued)

Pittsylvania  
County, 1898:

In 1898 I found the insect mining tobacco leaves in Pittsylvania County. U. S. Dept. Agr. Year-book. 1898. (L. O. Howard.)

Diamond Springs, 1909:

Abundant on eggplant at Diamond Springs. C. H. Popenoe. (Det. by A. Busck.)

Chatham, 1913:

U. S. Natl. Museum collection of specimens. Chatham, three larvae on tobacco, August 29, 1913. (E. A. Runner.)

Onley, 1923:

At Onley, Accomac County, 26 larvae on potato, in U. S. Natl. Museum November 7, 1923. (W. H. White.)

Onley, 1927:

At Onley, 30 larvae in U. S. Natl. Museum, collected by H. S. Peters, August 1927. (No food plant given.)

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Among States listed in distribution. U. S. Dept. Agr. Bul. 59, 1914. (Morgan and S. E. Crumb.)

Norfolk and  
Pittsylvania  
Counties:

Pittsylvania and Norfolk Counties mapped as established on plants other than potato. U. S. Dept. Agr. Bul. 427, 1917. (J. E. Graf.)

Northampton County,  
1923:

The potato tuber moth has become established in Northampton County on the Eastern Shore of Virginia, November 5, 1923. (H. Spencer, 1923.)

Wassawadox,  
Eastville,  
Norfolk, 1923:

Larvae injuring potato were found September 28, 1923. Infested potatoes received from Eastville and Wassawadox, October 16-17, 1923. Several barrels of seed potatoes from Norfolk, in which larvae and pupae were present, were found. December 17, 1923. Va. Truck Expt. Sta. Bul. 53: 419, 1925. (H. Spencer and W. O. Strong.)

Norfolk County, 1924:

Wormy potatoes were found in the Western Branch section of Norfolk County, January 5, 1924. In 1924 worms had spread northward an average of about 15 miles and were much more numerous than they had been the previous year. In 1925 foliage was found infested May 8. Va. Truck Expt. Sta. Bul. 53: 419, 1925 (H. Spencer and W. O. Strong.)

James City and  
New Kent Counties: ---

Present in James City and New Kent Counties. Bureau Correspondence, October 20, 1925. (C. H. Kauffman.)

VIRGINIA - (Continued)

- Arlington ----- Noted on Datura meteri at Arlington. No date given. (F. W. Poos.)
- 1925: Noted as a pest in Virginia in 1925. Va. State Crop. Pest Com. Quart. Bul. 7: 4. (Sept. 11, 1926.)
- Northampton and Accomac Counties, 1925: There was a severe outbreak in the foliage of the fall crop of potato in 1925. Va. Polytech. Inst. Bul. 251, 1926.
- General ----- Since the insect was first found in abundance in 1923 it has been recorded repeatedly in the literature and in reports to the Insect Pest Survey. Recorded from these additional counties: Brunswick, Caroline, Dinwiddie, Greenville, King George, Lancaster, Mathews, Middlesex, Wansanond, and Richmond.
- Onley, Bowling Green, Richmond, (south side): ----- During investigations in 1926 and 1927 the pest was found at these places on tobacco. Va. Truck Expt. Sta. Bul. 61, 1927.
- Arlington Farm, 1928, 1929 and 1930: Only a trace found in tobacco in 1928 and 1929 at Arlington Farm. Many times more abundant in 1930 than in 1928 and 1929. Found in potato, tobacco, jimson weed, and Datura innoxia. (F. W. Poos, 1930.)
- Toano, Pungo, Fentress, 1933: Scarce in potato fields at Toano, Pungo, and Fentress. Infestations found only near packing sheds and outbuildings where potatoes were stored late last fall (1932). (C. R. Wiley, June 26, 1933.)
- ----- A great deal of careful scouting on the Eastern Shore failed to find a single worm. (H. G. Walker, July 26, 1934.)
- Norfolk, 1935: The worm is very scarce this spring. It has only been found in one field in the Norfolk area. (H. G. Walker, June 25, 1935.)
- Northampton, Accomac, Princess Anne Counties, 1935: More abundant in Princess Anne, Northampton, and Accomac Counties than last year. (C. R. Wiley, Dec. 18, 1935.)
- Arlington, 1937: Two adults were found at Arlington Farm. (F. W. Poos, Jan. 7, 1937.) (Det. by A. Busck.)

VIRGINIA - (Continued)

Eastern Shore, 1939:

Within the last few days reports of attack on barreled and sacked potatoes on the Eastern Shore have been numerous. (H. C. Donohoe, July 15, 1939.)

Eastern Shore, 1941:

Doing considerable damage to several potato fields on the Eastern Shore, October 1-2, 1941. (C. R. Willey.)

Eastern Shore, 1941:

The potato tuber moth caused very severe damage in many fields of potatoes on the Eastern Shore. At harvesttime many of the tubers an inch or more below the surface of the ground were infested. These potatoes were placed in storage and many barrels of potatoes were seriously damaged. (H. G. Walker, Nov. 12, 1941.)

WASHINGTON

Seattle, 1913:

Correspondent sent specimens from potato, and asked for remedy. Bureau correspondence July 31, 1913. (Det. by F. H. Chittenden.)

Auburn,  
Seattle,  
and Yakima: ----

The species on potato has been received from Auburn, Seattle, and Yakima. U. S. Farmers' Bul. 557, 1913. (F. H. Chittenden.)

We have had this pest reported in our State several times in the last 2 years and several carloads of infested potatoes have been destroyed. Bureau correspondence. (M. A. Yothers, Feb. 27, 1914.) (Det. by F. H. Chittenden.)

Seattle, 1915:

I can state positively that this moth attacks the stems of potato. Bureau correspondence. (J. J. Mathews, Feb. 8, 1915.) (Det. by F. H. Chittenden.)

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King and Yakima Counties are mapped as places where this insect was introduced but not established. U. S. Dept. Agr. Bul. 427, 1917. (J. E. Graf.)

Ritzville, 1920:

Adult specimen in the U. S. Natl. Museum from Ritzville, Adams County, on July 1920. (R. C. Shannon.)

----- 1941:

Practically all of the potatoes in this State have been harvested, and with all the certification our department is doing, no infestation has been found. (F. E. DeSellen, 1941.)



# WEST VIRGINIA

- Search of my records shows that the insect has not been recorded in the State. (L. M. Peairs, Dec. 4, 1930.)
- To the best of our knowledge, investigations in potato fields have never shown the presence of the insect. (F. W. Craig, Sept. 23, 1941.)
- 1941: I have often taken moths, which I assumed to be this species, at trap lights, but have never had the identification checked. So far as observations or complaints are concerned, there is little or no injury from the insect to potatoes. I have no record of the insect on tobacco. On several occasions have thought that I had found the insect in some of the ornamental forms of tobacco at Morgantown, but never succeeded in rearing the moths. The injury resembled very closely the descriptions of the work in ordinary tobacco. (L. M. Peairs, Sept. 30, 1941.)

# WISCONSIN

- 1914: The tobacco splitworm was found in the State last summer. Wisc. Bul. 250: 30, 1915. (H. L. Russell, 1915.)
- Dane County ----- This county is mapped as a place where the species is established on plant other than potato. U. S. Dept. Agr. Bul. 427, 1917. (J.E. Graf.)
- S. B. Fracker, in February 1917, wrote to the Bureau for specimens from California to compare with specimens from Wisconsin.
- Dane, Jefferson, and Rock Counties, 1931: Many fields of tobacco in Wisconsin show injury by the splitworm for the first time in many years; some fields in Dane, Jefferson, and Rock Counties seriously damaged. Insect Pest Survey Bul. 11: 466, 1931. (E. L. Chambers.)
- 1933: The tobacco splitworm is again showing up in spots in southern Wisconsin. Insect Pest Survey Bul. 13: 209, 1933. (E. L. Chambers.)
- E. H. Searls says: "We studied the insect as the tobacco splitworm in 1931. We found 5.7 percent of the plants in nurseries infested on July 7. On July 10, 11.7 percent of the plants were rosetted as a result of splitworm injury." T.C. Allen notes: "To date we have no records or specimens of the potato tuber moth." C. L. Fluke states

WISCONSIN - (Continued)

"I am unable to find anything, but did not check all the departmental reports." (H. F. Wilson, Nov. 18, 1941.)

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In going through our records, we find there was a trace of the tobacco splitworm each year from 1934 to 1938. Since that time we have had none reported by the growers; and specialists working with tobacco report that they rarely see it. (E. L. Chambers, Sept. 26, 1941.)

WYOMING

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Insofar as I have been able to determine, this insect does not exist in the State. (T. T. Snipes, Sept. 24, 1941.)

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